IN THE CLAIMS:

This listing of the claims replaces all previous versions of the claims in this application.

Claims 1-52 (Canceled)

53. (Currently amended) A system for assisting cardiac ventricular function, the system comprising: a hydraulic pumping assembly and a cardiac ventricular assist device (72) in fluid communication with each other ~~the cardiac ventricular assist device~~, wherein the ventricular assist device comprises:

a. a first annular magnet (54) comprising a ~~formed of~~ high ferromagnetic-constant material;

b. a first sleeve (68) surrounding the first annular magnet (54) and defining a space in fluid communication with the blood flow output great vessel of a diseased ventricle of the patient using the device, such that the first annular magnet (54) is ~~being~~ longitudinally and reciprocally slideable within the first sleeve in substantially fluid-tight relation thereto;

c. a second annular magnet (44) comprising a ~~formed of~~ high ferromagnetic-constant material and sized and shaped for placement exterior of the first sleeve (68), the second annular magnet (44) being ~~disposed coaxially in relation~~ positioned coaxial to and in magnetic communication with the first annular magnet (54), so that the respective magnetic fluxes of the fist magnet and the second magnet affect each other, so that the first annular magnet and the second annular magnet are biased toward and tend to lock to one another, and to thereby move in the same direction as one another;

d. a second sleeve (72) encasing the second annular magnet (44), the second annular magnet being longitudinally and reciprocally slideable between the first sleeve (68) and the second sleeve in substantially fluid-tight relation to the first sleeve and the second sleeve, and the second sleeve (72) defining an annular space (86) radially outwardly of the first sleeve (68) for longitudinal travel therein of the second annular magnet (44), the annular space (86) being in fluid communication with the ~~a~~ hydraulic pumping assembly ~~pump~~ for actuating the second annular magnet (44); and

e. an one-way valve (70) connected to the first annular magnet (54) and disposed transversely in relation to the longitudinal axis of the first annular magnet (54), the one-

way valve being movable with the first magnet, such that the one-way valve is and closed when moving in a forward direction ~~away from the origin of the valve annulus when the device is in normal use position, to thereby cause blood of the patient to move out of a diseased ventricle and toward the great vessels associated with that diseased ventricle as the first annular magnet (54) moves in a direction toward the great vessels of the diseased ventricle due to magnetic flux of the second annular magnet, the one-way valve further being adapted to be~~ and open when moving in a reverse direction ~~away from the great vessels of the diseased ventricle~~, to thereby permit one-way movement of blood ~~of the patient to flow~~ through the one-way valve into a ~~the~~ space defined by the first sleeve (68) ~~when the second annular magnet moves away from the great vessels of the diseased ventricle~~;

and further wherein the hydraulic pumping assembly comprises:

a. a hydraulic pump (42) comprising ~~having~~:

i. at least one electromagnetic coil (46, 48, 50) encapsulated so as to be fluid-tight, and defining a pumping chamber for retaining hydraulic fluid (52) therein, the pumping chamber having first and second opposed ends;

ii. a first end cap (56) and a second end cap (57) connected at opposed first and second ends of the pumping chamber, respectively, the first end cap and the second end cap each having an aperture in fluid communication with a hydraulic fluid line; and~~,~~

iii. a substantially solid high ferromagnetic-constant magnet (40) disposed longitudinally, slideably and reciprocally within the pumping chamber to act as a piston for driving hydraulic fluid within the pumping chamber in response to signals from a batter/controller assembly;

b. a fluid line (59, 60) having ~~,~~ a first end and a second end, the first end of the fluid line being connected to and in fluid communication with an aperture in the first end cap and the second end of the fluid line being connected to and in fluid communication with an aperture in the second end cap, and the VAD being in fluid communication with the hydraulic pumping assembly at a point on the fluid line between the first end and the second end of the fluid line;

c. a check valve (84) operatively connected in the fluid line between the connection of the first end of the fluid line and the second end of the fluid line to the first and second end caps respectively, and the fluid line being in fluid communication with the VAD, after the point of connection of the check valve and before the connection of the second end of the fluid valve and the second end cap of the pump cylinder; and

d. a battery/controller assembly (65) operatively connected to the check valve and to the at least one electromagnetic coil to provide electric power and control signals to the pump~~, the battery controller assembly in electrical communication with the native heart of the patient using the system, to thereby receive electronic information, including at least portions of ECG signals, blood pressure signals and/or blood volume signals, from the native heart~~.

54. (Currently amended) The system of claim 53, wherein the entire device (58, 74) is of sufficiently small size and weight for placement in normal operative position between the valve annulus and the great vessels of the diseased ventricle of a patient using the device, to assist or replace the function of at least a portion of the diseased native heart.

55. (Currently amended) The system of claim 53, wherein the battery controller assembly and the hydraulic pump are of sufficiently small size and weight to be entirely contained within the abdominal cavity of a ~~the~~ patient using the system and the VAD is of sufficiently small size and weight to be entirely contained within the chest cavity of the patient using the system~~, and the complete system, including all wires and hydraulic fluid lines, is entirely contained within the body of the patient, so that there is no part of the system extending exterior of the skin of a patient using the system when the system is in normal use position in the patient~~.

56-59. (Cancelled)

60. (Currently amended) A system for completely replacing cardiac ventricular function in a diseased native heart, the system comprising:

a. a hydraulic pumping system; and

b. a BI-VAD assembly having a L-VAD and a R-VAD, ~~the L-VAD and the R-VAD having sufficient stroke volumes to supply the total cardiac blood flow output for the diseased native heart of a patient using the system, the L-VAD being disposed to at least partly replace the diseased left ventricle of the native heart of the patient and the R-VAD being~~

~~disposed in normal use position to at least partly replace the diseased right ventricle of the native heart of the patient, with the inlet of the R-VAD being grafted to an artificial heart valve and the outlet of the R-VAD being grafted into the pulmonary trunk of the patient;~~

wherein the L-VAD comprises:

a. a first magnet having an open center and formed of high ferromagnetic-constant material;

b. a first vessel surrounding the first magnet and defining a first space ~~in fluid communication with the aortic arch of the patient using the device~~, the first magnet being movable within the first vessel in substantially fluid-tight relation thereto;

c. a second magnet formed of high ferromagnetic-constant material and being in magnetic communication with the first magnet, so that the first magnet and the second magnet are biased toward and tend to lock to one another, to thereby move in the same direction as one another;

d. a second vessel encasing the second magnet and defining a second space, the second magnet being movable within the second space in substantially fluid-tight relation to the second vessel, the second space ~~defined by the second vessel~~ being in fluid communication with the ~~a~~ hydraulic pumping system ~~pump~~ for actuating the second magnet; and

e. an one-way valve connected to the corresponding first magnet of the L-VAD , the one-way valve being movable with the first magnet of the L-VAD and closed when moving in a forward direction ~~toward the aortic arch when the device is in normal use position in a patient using the device, to thereby cause blood of the patient to push through the aortic arch as the first magnet moves toward the aortic arch of the patient when the second magnet is actuated to move toward the aortic arch, the one-way valve in the L-VAD further being~~ and open when moving in a reverse direction ~~away from the aortic arch~~, to-thereby permit blood ~~of the patient~~ to flow in only one direction through the one-way valve of the L-VAD; and

wherein the R-VAD comprises:

a. a first magnet having an open center and formed of high ferromagnetic-constant material;

b. a first vessel surrounding the first magnet and defining a first space ~~in fluid communication with the bifurcation of the pulmonary arteries of the patient using the device~~, the first magnet being movable within the first vessel in substantially fluid-tight relation thereto;

c. a second magnet formed of high ferromagnetic-constant material and being in magnetic communication with the first magnet, so that the respective magnetic fluxes of the first magnet and the second magnet affect each other, so that the first magnet and the second magnet are biased toward and tend to lock to one another, to thereby move in the same direction as one another;

d. a second vessel encasing the second magnet and defining a second space, the second magnet being movable within the space in substantially fluid-tight relation to the second vessel, the space defined by the second vessel being in fluid communication with the ~~a~~ hydraulic pumping system ~~pump~~ for actuating the second magnet; and

e. an one-way valve being movable with the first magnet of the R-VAD and closed when moving in a forward direction and ~~toward the bifurcation of the pulmonary arteries when the R-VAD is in normal use position in a patient using the assembly, to thereby cause blood of the patient to push through the bifurcation of the pulmonary arteries as the first magnet of the R-VAD moves toward such bifurcation when the second magnet of the R-VAD is actuated to move toward the bifurcation, the one-way valve of the R-VAD further being~~ open when moving in a reverse direction ~~away from the bifurcation of the pulmonary arteries~~, to thereby permit blood ~~of the patient~~ to flow in only one direction through the one-way valve of the R-VAD;

wherein the at least one hydraulic pumping assembly comprises:

a. a hydraulic pump having:

an encapsulated pumping chamber for retaining hydraulic fluid therein, the pumping chamber having opposed first and second ends;

at least one electromagnetic coil surrounding the pumping chamber; and

a substantially solid high ferromagnetic-constant magnet disposed longitudinally, slideably and reciprocally within the pumping chamber to act as a piston for driving hydraulic fluid within the pumping chamber in response to signals from a battery/controller assembly;

b. a fluid line having a first end and a second end, the first end of the fluid line being connected to and in fluid communication with an the first end of the pumping chamber and the second end of the fluid line being connected to and in fluid communication with the second end of the pumping chamber, the L-VAD and the R-VAD being in fluid communication with the fluid line at a point on the fluid line after the point of connection of the check valve and before the connection of the second end of the fluid line and the second end pump chamber; and

c. a battery/controller assembly operatively connected to the check valve and to the at least one electromagnetic coil to provide electric power and control signals to the pump~~, the battery controller assembly in electrical communication with the native heart of the patient using the system, to thereby receive signals corresponding to physiological parameters from the native heart~~.

61. (Cancelled)